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Changes in activity after a complete spinal cord injury as measured by the Spinal Cord Independence Measure II (SCIM II)

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Abstract: BACKGROUND: The assessment of rehabilitation efficacy in spinal cord injury (SCI) should be based on a combination of neurological and functional outcome measures. The Spinal Cord Independence Measure II (SCIM II) is an independence scale that was specifically developed for subjects with SCI. However, little is known about the changes in SCIM II scores during and after rehabilitation. OBJECTIVE: The aims of this study were to evaluate changes in functional recovery during the first year after a complete SCI as measured by the SCIM II compared with neurological recovery (motor scores according to the American Spinal Injury Association [ASIA]). METHODS: SCIM II data and ASIA motor scores at 1, 3, 6, and 12 months after injury (derived from the database of the European Multicenter Study of Human Spinal Cord Injury) of 64 patients with complete paraplegia and 36 patients with complete quadriplegia were analyzed. RESULTS: In patients with complete paraplegia, the SCIM II total score improved significantly during the 1-year follow-up, even after discharge from rehabilitation. In contrast, the ASIA motor scores showed little recovery. In patients with quadriplegia, functional and motor recovery developed in parallel during rehabilitation and after discharge. CONCLUSIONS: The SCIM II is responsive to functional changes in patients with a persistent motor complete SCI. It is clinically useful for monitoring functional improvement during rehabilitation and after discharge. The SCIM II and the clinical examination based on the ASIA protocol are of complementary value and separately describe changes in independence and sensorimotor deficits in SCI patients.

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